MIMOS Query Accelerator (Mi-Galactica)

Data discovery capabilities are becoming more important for accurate decision making in increasingly complex and competitive business rules and environments. MIMOS Mi-Galactica further advances data processing speeds by using GPUs for massive parallel processing of unpredictable, complex and long-running query workloads.

Overview

MIMOS Mi-Galactica is a lightning-fast application for accelerating query operations. This new-generation software accelerator outpaces traditional approaches of parallel processing query operations that support data retrieval and evaluation. It is a flexible solution that leverages on the massive bandwidth of multi-core central processing units (CPUs) and many-core graphics processing units (GPUs) for the parallel processing of multi-billion row datasets.

Features

Mi-Galactica comprises the following features:

- **Data Extraction and Formulation**
  Mi-Galactica communicates with relational databases such as PostgreSQL and MySQL and CSV formats by performing frontend application interaction, data extraction and data interchange. Data is preprocessed and formulated into parallel file structures to optimise disk access and loading of relevant data.
- **Expandable Plug-ins**
  Task handling capabilities are extendable through expandable plug-ins that provide message, data and command service that work hand-in-hand with a heterogeneous task scheduler.
- **Accelerated Query Engine**
  This feature performs in-memory Structured Query Language (SQL)-like operations by utilising multi-core CPU and many-core GPU. It performs deep analysis and tracing of query structures by data filtering, joining, reduction, sorting and arithmetic. Mi-Galactica also utilises data compression algorithms to accelerate data processing by the CPU or GPU.
- **Scalable Heterogeneous Framework**
  A scalable and configurable plug-in framework enables users to customise and extend functionalities in SQL-like language via services in application programming interfaces (APIs).

Technology Benefits

The main impacts of Mi-Galactica are:

- **High-Speed Query Computation**
  Mi-Galactica boosts query operations through massive parallel computing, using GPU technology. It maximises the usage of instructions with multiple data in query operations. This allows organisations to process more data than ever before.
- **Transparent Heterogeneous Hardware Support**
  Mi-Galactica is a high-performance query accelerator designed for massive parallel processing of big data and complex computations in simplified query language. It is also processor agnostic and can run across different hardware platforms with ultra-speed processing capabilities while guaranteeing data reliability on Windows and Linux.

Technology Summary

Mi-Galactica

A lightning-fast software accelerator for query operations that enables the parallel processing of multi-billion row datasets.

Industries: Enterprise, Government

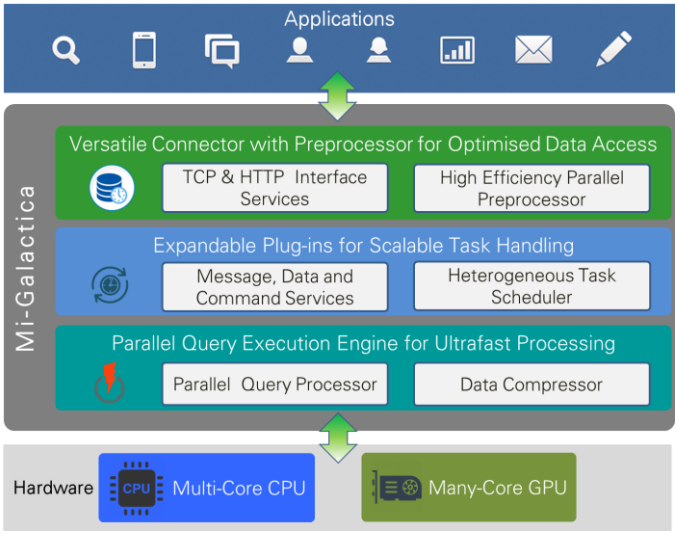
Features

Mi-Galactica addresses high volume data processing challenges by offering the following features:

- Data extraction and formulation
- Expandable plug-ins
- Accelerated query engine
- Scalable heterogeneous framework

Technology Benefits

- High-speed query computation
- Transparent heterogeneous hardware support



MIMOS Mi-Galactica system overview

System Requirements

Mi-Galactica	
Minimum Hardware Requirements	
Processor	Quad-Core Processor 3.0GHz
Memory	16GB RAM
Disk Storage	250GB HDD
GPU	NVIDIA® Tesla® Series GPU Card running in TCC mode (one unit; NOT used for display purpose)
Minimum Software Requirements	
Operating System	Microsoft® Windows® Server 2012 R2 (64-bit) Microsoft® Windows® 7 Professional (64-bit) Linux® Ubuntu 14.04 LTS (64-bit) Linux® CentOS 7 (64-bit)
GPU	NVIDIA® CUDA® 7.0 with compatible display drivers
	NVIDIA® CUDA® Toolkit
	NVIDIA® GPU Computing SDK
	NVIDIA® NSight™
Database	MySQL PostgreSQL

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